AMENDMENTS TO THE CLAIMS:

Replace the claims with following rewritten listing:

1. – 11.   (Cancelled)

12.   (New) Method of representing a predeterminable region in multidimensional data sets, wherein data sets comprise in particular three- or four-dimensional image data of an object to be examined, wherein the image data are generated by means of one or more images of the object, and wherein at least one in particular two-dimensional section (S) is made through the predeterminable region and displayed, wherein the section (S) is defined by at least one vector plane (E1, E2), which lies in the multidimensional data set, the at least one vector plane (E1, E2) is fixed by means of a vector, and the vector is fixed in the multidimensional data set and/or on in particular two-dimensional planes of section (S1, S2) through the multidimensional data set, and wherein the vector is a direction vector which has a specifiable orientation and a specifiable length spanning the predeterminable region, the vector being adapted to the multidimensional data set, wherein the vector is fixed on a first two-dimensional plane of section (S1) by specifying the orientation and length, and the vector so fixed is copied on to a second plane of section (S2), preferably non-parallel to the first plane of section (S1), and may be corrected thereon.

13.   (New) Method according to claim 12, wherein the at least one vector plane (E1, E2) is fixed by the start point and/or end point of the vector and the vector is positioned orthogonally on the vector plane (E1, E2).

14.   (New) Method according to claim 13, wherein a first vector plane (E1) is fixed by the start point and a second vector plane (E2) parallel to the first vector plane (E1) is fixed by the end point of the vector and the vector is positioned orthogonally on both vector planes (E1, E2).

15.   (New) Method according to claim 12, wherein the direction of the vector is oriented from the start point to the end point, in that the section (S) is defined by a vector plane (E1, E2) positioned perpendicular to the vector, and the representation of the predeterminable region is effected by means of the section (S) by displacing the vector plane (E1, E2) successively from the start point to the end point.

16.   (New) Method according to claim 12, wherein the multidimensional data set is cut off

at the vector planes (E1, E2) by the blanking out of corresponding image data and only those image data are shown multidimensionally which lie between the vector planes (E1, E2).

17.   (New) Apparatus for displaying a predeterminable region in multidimensional data sets, wherein the data sets comprise in particular three- or four-dimensional image data of an object to be examined and wherein the image data are generated by means of one or more images of the object, comprising computing means for generating at least one in particular two-dimensional section (S) through the predeterminable region and display means for displaying the section (S), wherein the section (S) is defined by at least one vector plane (E1, E2) which lies in the multidimensional data set, the at least one vector plane (E1, E2) is fixed by means of a vector, and the vector may be manipulated and fixed by means of manipulation means in the multidimensional data set and/or on in particular two-dimensional planes of section (S1, S2) through the multidimensional data set, wherein the vector is fixable by means of manipulation means on a first two-dimensional plane of section (S1) by specifying the orientation and length and the vector so fixed is copied on to a second plane of section (S2), preferably non-parallel to the first plane of section (S1), and may be corrected thereon.

18.   (New) Apparatus according to claim 17, wherein during manipulation of the vector on the first plane of section (S1), the image of the vector is manipulated synchronously on the second plane of section (S2).

19.   (New) Apparatus according claim 17, wherein the vector may be manipulated and copied multidimensionally in the multidimensional data set.